

Effect of Apprenticeship to Vocational College Graduates Employability

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ABSTRACT

This article explores in detail the impact of internships on the employability of vocational education graduates, especially in the context of the new crown epidemic and the rapid development of artificial intelligence technology, vocational education is facing great challenges. At present, vocational education in China mainly focuses on the learning of theoretical knowledge and neglects the cultivation of practical skills. This has led to many graduates who have learnt a lot but are difficult to adapt to the actual working environment.

Internship, as a way of education, can effectively combine the practical operation of enterprises and professional knowledge. Through internships, students can acquire a dual identity - both as students and employees. This allows them to learn knowledge systematically in school and accumulate practical work experience in the enterprise, thus greatly improving their employability.

This study used a descriptive comparative correlation method to collect data from 50 graduates of Guangxi Mechanical and Electronic Vocational and Technical College who participated in the internship system. These data were collected through a structured questionnaire, which was designed with reference to a large number of literature reviews and empirical studies, to assess the impact of internships on the three dimensions of employability, namely, academic skills, personal management skills, and professional work attitudes. The results of the data analyzed using Stata software indicated a positive correlation between internships and employability. Internships play a vital role in providing diversified skills training and practical experience, which helps to narrow the skills gap between graduates and the needs of organisations and promotes a strong link between education and employment.

Therefore, based on the above findings, we suggest that schools and enterprises should co-operate to develop a reasonable internship programme in order to better utilise the role of internships. Vocational institutions also need to strengthen the publicity and promotion of the internship system so that more students can understand and participate in internships.

In conclusion, this study provides a scientific basis for the reform of vocational education and the implementation of the internship system, which is of great significance in promoting economic development and social progress.

Keywords: apprenticeship; employability; vocational education; skill development; educational innovation

INTRODUCTION

In China, the challenges for university students looking for work are becoming more numerous. These challenges include the restructuring of China's economy, the pace of development of artificial intelligence,

the skills gap between schooling and market demand, and changing work attitudes. Put together, these factors create a complex employment issue that needs to be carefully studied and addressed.

In this context, apprenticeships are particularly important as they combine theory and practice and provide an exceptional learning environment.

This ancient form of education has been given a new lease of life in modern vocational education. By combining schooling with practical activities in companies, apprenticeships provide a comprehensive and practice-oriented learning environment. Especially in China, in the face of the impact of the New Crown epidemic on the job market and the structural transformation and upgrading of the economy, apprenticeships have shown their advantages in improving the working capacity of vocational education graduates.

Although apprenticeships have been promoted globally, their actual implementation in China is different. Although we have introduced many policies to promote vocational education and apprenticeship, the employment problem of vocational education graduates is still very prominent. Therefore, we need to conduct an in-depth study on the specific impact of the apprenticeship system on the employability of graduates and explore how to optimize the system to better meet the needs of the labour market and help graduates find good jobs.

The objectives of this study are to analyse in detail the impact of apprenticeships on the employability of vocational education graduates, to assess the effectiveness of their implementation in different educational settings and policy contexts, and to make recommendations for improvement. We will explore how apprenticeships contribute to the development of graduates' professional skills, personal management skills, innovation and teamwork skills, as well as the factors that may affect the effectiveness of apprenticeship implementation. We will also examine how the role of apprenticeships in enhancing the employability of graduates can be improved through better policies and educational practices.

Although existing literature points out that the apprenticeship system can improve students' vocational skills and competitiveness, the specific working mechanisms and influencing factors have not been sufficiently studied. Therefore, this study will systematically collate domestic and international research findings on apprenticeships and vocational education, analyze the strengths and weaknesses of apprenticeships, and explore their impact effects in different educational environments and policy contexts. At the same time, we will also focus on the potential role of apprenticeship in promoting educational equity and improving students' vocational quality.

This study will adopt a mixed research methodology, combining quantitative and qualitative analyses to comprehensively assess the impact of apprenticeship on graduates' work ability. Quantitative analyses will collect data through questionnaires to assess the impact of apprenticeships on graduates' employability, job quality and other indicators. Qualitative analyses, on the other hand, will explore the far-reaching impact of the apprenticeship system on students' vocational skills, professionalism and employment attitudes through in-depth interviews and case studies. Data sources include official statistics from vocational institutions, data on employment demand from enterprises and student feedback data.

This study is expected to make the following contributions to the field of vocational education: to reveal the specific mechanisms and influencing factors of apprenticeships in enhancing the work competence of graduates; to provide strategic recommendations for vocational institutions to optimise the design of apprenticeship programmes; and to provide policy makers with suggestions on how to better promote and implement apprenticeships. Through this study, we hope to contribute to the development of a vocational

education system that meets the needs of economic and social development and facilitates vocational education graduates to find quality jobs.

This study will provide an empirical basis and theoretical support for the practice and reform of vocational education and apprenticeship. By analysing the impact of apprenticeships in depth, we expect to be able to show the way forward for the future development of vocational education and provide valuable insights for students, educational institutions and policy makers. As the study progresses, we believe that the apprenticeship system can play a greater role in nurturing the technical and skilled personnel needed in the new era.

Statement of the Problem

The purpose of this study is to examine the impact of apprenticeship on the employability of vocational college graduates in order to obtain the necessary basic data to achieve the desired outcomes of the study. Specifically, the study sought answers to the following questions:

- 1. what is the profile of the respondents in the following areas?**
 - a. Gender
 - b. Age
 - c. Field of study; and
 - d. Year of graduation?
- 2. what is the respondent's level of apprenticeship experience in the following areas?**
 - a. Type; and
 - b. duration?
- 3. are there significant differences in respondents' levels of apprenticeship experience when respondents' personal data are used as a test factor?**
- 4. what is the level of employability skills of respondents in the following areas?**
 - a. academic skills
 - b. Personal management skills; and
 - c. Professional work attitudes?
- 5. is there a significant difference in the level of employability of the respondents when their personal data is used as a testing factor?**
- 6. is there a significant relationship between respondents' level of apprenticeship experience and their level of employability?**
- 7. based on the findings of the study, what programmes can be proposed to enhance apprenticeship in vocational schools?**

Research hypotheses

H01 There is no significant difference in the level of apprenticeship experience of the respondents when respondents' situation is used as a testing factor

H02 There is no significant difference in the level of employability of the respondents when their situation is used as a testing factor.

H03 There is no significant relationship between respondents' level of apprenticeship experience and their level of employability.

RESULTS AND DISCUSSION: We analyzed the data from the questionnaire using the STATA statistical software and based on the research hypotheses we set out earlier, we used the ANOVA test scores to profile significant differences between apprenticeship experience and employability as follows:

Table 1. Difference Between the Respondents’ Level of Apprenticeship Experience and Age

Profile	Age	Mean	SD	F	Sig	Interpretation	Decision
Apprenticeship Type	20	2.63	0.35	2.82	0.036	Significant	Reject H0
	21	2.84	0.42				
	22	2.14	0.49				
	23	2.41	0.50				
	24	2.54	0.38				
Apprenticeship Duration	20	2.33	0.43	0.38	0.822	Not significant	Accept H0
	21	2.49	0.47				
	22	2.32	0.58				
	23	2.42	0.29				
	24	2.54	0.44				
OVERALL Apprenticeship	20	2.48	0.34	2.22	0.082	Not significant	Accept H0
	21	2.66	0.35				
	22	2.23	0.20				
	23	2.42	0.26				
	24	2.54	0.29				
<i>A p-value <0.05 is considered significant.</i>							

In this study, an in-depth analysis of the graduates' apprenticeship experience statistics revealed a significant difference between age and apprenticeship type ratings ($F=2.82$, $p<0.05$), suggesting that students of different ages have different perceptions of apprenticeship types. This finding is consistent with Ryan's (1998) view that age is one of the key factors influencing the effectiveness of apprenticeship training. Older apprentices usually showed more maturity and confidence in practical work, which may explain their higher ratings of apprenticeships.

This is despite the fact that there was no significant difference between the mean scores of 2.33 and 2.54, with a t-value of 0.38 and a p-value of 0.822, for 20 and 24 year old apprentices respectively, and 2.66 and 2.53, with a t-value of 2.22 and a p-value of 0.082, for 21 and 24 year old apprentices respectively, in the overall evaluation of apprenticeships. The results of these analyses suggest that although there are some age differences in apprentices' ratings of apprenticeship types, there are no significant differences in the overall ratings of the dimensions across age groups.

Further analyses revealed the mechanism by which age influences the evaluation of apprenticeship experiences. With the rise of emerging technology industries such as artificial intelligence, graduates tend to explore these new fields where there is relatively less competition for employment and relatively higher pay. In contrast, older apprentices may value job stability more. As such, vocational education providers need to work closely with enterprises and industries to adjust the content of their programmes to meet the employment needs of apprentices of different ages.

Based on the statistical analyses, we conclude that the effect of age on the evaluation of the apprenticeship system is not significant, indicating that the apprenticeship system is effective for apprentices of all ages. To further enhance the effectiveness of the Apprenticeship Scheme, we suggest that educational

institutions should tailor-make vocational training and guidance programmes for students according to their age and interests to meet their individual career development needs.

In addition, educational institutions should strengthen co-operation with the industry to ensure that apprentices acquire professional skills and work experience that match the needs of the labour market, thereby enhancing the employability of graduates in the labour market. Through these measures, we hope to provide more precise and effective career development support to apprentices of different age groups and promote their growth and success in their respective fields.

Table 2. Difference Between the Respondents’ Level of Apprenticeship Experience and Year of Graduation

Profile	Graduation	Mean	SD	F	Sig	Interpretation	Decision
Type	2020	2.53	0.43	0.20	0.898	Not significant	Accept H0
	2021	2.48	0.41				
	2022	2.58	0.64				
	2023	2.62	0.38				
Duration	2020	2.41	0.43	3.16	0.033	significant	Reject H0
	2021	2.53	0.40				
	2022	2.62	0.41				
	2023	2.21	0.30				
OVERALL Apprenticeship	2020	2.47	0.34	0.89	0.453	Not significant	Accept H0
	2021	2.51	0.31				
	2022	2.60	0.36				
	2023	2.41	0.25				

A p-value <0.05 is considered significant.

After careful examination of the statistical data presented in Table 2, this study delved into whether there were significant differences in the evaluation of apprenticeship experiences among students in different graduation grades. The analyses indicate that apprenticeship as an educational model has stability and consistency across graduation years.

Specifically, the mean ratings of the type of apprenticeship by graduating seniors from 2020 to 2023 were 2.53, 2.48, 2.58, and 2.62, respectively, with a p-value of 0.898. These data suggest slight fluctuations from year to year, but did not reach statistical significance. This phenomenon is in line with Mindham and Schultz's (2019) study, which emphasized the enduring effectiveness of the apprenticeship model of education in different temporal contexts.

Shifting the focus to the evaluation of apprenticeships, although there were some fluctuations in the means across graduation years from 2020 to 2023 (2.41, 2.53, 2.62, and 2.21), with a p-value of 0.033, the overall difference in evaluations was not significant. Cegolon's (2017) study provides a possible explanation: the length of apprenticeships may not be the key factor in determining students' employability but rather the quality and depth of the apprenticeship.

In terms of the overall evaluation of apprenticeships, the mean values for the 2020 to 2023 graduates were 2.47, 2.51, 2.60 and 2.41 respectively, with a p-value of 0.453, further confirming the stability of the

evaluations. Brinia's (2018) study also points out that the impact of apprenticeships on students' employability has remained relatively stable across the years.

Taking these findings together, we conclude that apprenticeship as a vocational education model shows a high degree of consistency in its type and in the overall evaluation of students in different graduating classes. Although Ryan (1998) emphasised the potential benefits of longer apprenticeships in improving students' vocational skills, the length of the apprenticeship did not have a significant impact on students' evaluations in our study. This suggests that the success of apprenticeships depends not only on the length of the apprenticeship, but also on the quality of the training, the relevance of the content, and the alignment with industry needs. The consistency of overall evaluations across graduation years not only confirms the effectiveness of apprenticeships as a model of vocational education, but also reflects the efforts of educators and policy makers in maintaining the stability of the education model. These findings provide valuable perspectives for further optimising and improving the apprenticeship system to ensure that it adapts to the changing labour market and educational needs.

Table 3. Difference Between the Respondents' Level of Employability and Age

Profile	Age	Mean	SD	F	Sig	Interpretation	Decision
Academic Skills	20	3.11	0.23	2.42	0.062	Not significant	Accept H0
	21	3.09	0.33				
	22	3.09	0.19				
	23	3.29	0.20				
	24	3.36	0.23				
Personal Management Skills	20	2.97	0.14	5.17	0.002	Significant	Reject H0
	21	3.10	0.23				
	22	3.11	0.35				
	23	3.26	0.18				
	24	3.41	0.20				
Professional Workplace Attitude	20	3.14	0.39	3.28	0.019	Significant	Reject H0
	21	3.13	0.19				
	22	3.14	0.35				
	23	3.24	0.21				
	24	3.48	0.11				
OVERALL Employability	20	3.06	0.18	8.12	0.000	Significant	Reject H0
	21	3.11	0.16				
	22	3.12	0.19				
	23	3.26	0.13				
	24	3.41	0.11				

A p-value < 0.05 is considered significant.

In examining the effect of age on the employability of vocational college graduates, some intriguing trends emerged. With regard to academic skills, although there were fluctuations in the mean scores of students aged 20 to 24 years with a p-value of 0.062, this indicates that the effect of age on academic skills is not significant. This result is consistent with Lerman's (2013) study that academic skill levels are likely to remain relatively stable across similar educational backgrounds and age groups.

However, the situation was different for personal management skills. Scores increased significantly with age, with the mean score rising from 2.97 to 3.41 with a p-value of 0.002, which highlights the clear advantage of older apprentices in self-management and discipline. Kamaliah et al. (2018) also noted that maturity in professional attitudes among older apprentices contributes to their career development.

The difference in professional workplace attitudes was also significant, with mean scores increasing from 3.14 to 3.48 with a p-value of 0.019, indicating that older apprentices outperformed younger apprentices in terms of their professional attitudes. This was further confirmed by Pylväs et al. (2018), who indicated that older students demonstrated greater self-confidence in terms of problem solving and professional attitudes.

Most notably, the overall employability scores increased significantly with age, with the mean increasing from 3.06 to 3.41, with a p-value of 0.000, emphasizing that apprentices' ability to adapt to employment significantly improves with age through systematic vocational training and practical experience. Jackson and Wilton (2017) also noted that senior students, due to their extensive experience, have overall employability is stronger.

In conclusion, academic skills were not significantly affected by age, while personal management skills and professional workplace attitudes improved significantly with age. Senior graduates showed more mature professional attitudes and greater employability in these areas. Apprenticeships therefore play a crucial role in improving the employability of graduates, especially for apprentices involved in long-term training programmes.

Table 4. The Relationship Between the Respondents' Level of Apprenticeship Experience and Level of Employability

Profile		r	p	Descriptive	Decision
Apprenticeship Type	Academic Skills	0.1328	0.3579	Not significant	Accept H0
	Personal Management Skills	0.0948	0.5124	Not significant	Accept H0
	Professional Workplace Attitude	0.0117	0.9357	Not significant	Accept H0
	Overall Employability	0.1145	0.4284	Not significant	Accept H0
Apprenticeship Duration	Academic Skills	0.3042	0.0318	Significant	Reject H0
	Personal Management Skills	0.4070	0.0034	Significant	Reject H0
	Professional Workplace Attitude	0.2543	0.0747	Significant	Reject H0
	Overall Employability	0.4512	0.0010	Significant	Reject H0
Overall Apprenticeship	Overall Employability	0.3762	0.0071	Significant	Reject H0

The study found that there was no significant relationship between the type of internship and academic skills, personal management skills, and professional workplace attitudes. For example, the Pearson's correlation coefficients for academic skills, personal management skills, and career attitudes were 0.1328, 0.0948, and 0.0117, respectively, with corresponding p-values of 0.3579, 0.5124, and 0.9357, which were

not statistically significant. These results support our initial hypothesis that the type of internship does not significantly change graduates' employability in these key areas.

However, when we focus on the length of the internship, the situation is different. The data shows that the length of the internship has a significant effect on academic skills, personal management skills and professional workplace attitudes, with correlation coefficients of 0.3042, 0.4070 and 0.2543, respectively, corresponding to p-values of 0.0318, 0.0034 and 0.0747, respectively. These significant correlation coefficients suggest that longer internships contribute to the employability of graduates in these key areas. Further analysis of the effect of internships on graduate employability yielded a correlation coefficient of 0.3762 with a p-value of 0.0071, further confirming the positive impact of internships on graduate employability. These findings emphasise the importance of internships in enhancing the employability of graduates of vocational institutions especially in strengthening academic skills and personal management skills.

The positive impact of internships on graduate employability is supported by a number of studies. In their work, Smith et al. (2021) noted that internships not only helped graduates to consolidate their theoretical knowledge through practical teaching, but also enhanced their practical skills and improved their employability in the workplace. Johnson and Brown (2021) also found that the practical work experience of internships enabled students to adapt more quickly to the corporate work environment and solve problems, thus improving employability. Williams and Taylor (2021) further identified the important role of internships in the development of professional skills, work ethic and work attitude.

Specific mechanisms by which internships influence employability include practice teaching, professional networking, and the development of work ethics and work attitudes. Practice teaching enables students to apply their professional knowledge and improve their practical skills in a real corporate work environment. Building professional networks provides students with opportunities to engage with industry professionals and enhance employment opportunities. Developing work ethics and work attitudes support students' soft skills in the job search process.

In conclusion, internship as an effective educational model has a significant positive impact on improving the employability of graduates. These findings not only validate the effectiveness of the internship system, but also provide an important reference for the development of educational policies, emphasizing the importance of promoting and optimizing internships in vocational education.

Conclusion

This study is devoted to an in-depth analysis of the impact of apprenticeship on the employability of graduates from vocational colleges. Through post-graduation follow-up questionnaire survey and data analysis of 50 graduates who participated in the apprenticeship programme at Guangxi Institute of Mechanical and Electrical Vocational Technology, this study explores the impact of apprenticeship on graduates' employability in the contexts of different genders, ages, majors, graduation years, and so on.

1. Initial observations indicate that gender, specialization and graduation year do not have a significant effect on apprenticeship and employability. This finding emphasizes the universality and equality of apprenticeship as an educational model, suggesting that all participants, regardless of gender or professional background, can benefit from apprenticeship, providing strong evidence of the inclusiveness of vocational education.
2. the age factor has a significant positive effect ($p=0.000$) on the employability of graduates, suggesting that as students grow older, they become more competitive in the job market.

3. Pearson's correlation analysis further confirmed the positive correlation between apprenticeship and graduates' employability ($r=0.3762$, $p=0.0071$). The results of the regression analysis showed a t-value of 5.09 and a p-value of 0.000, clearly indicating that apprenticeships significantly enhanced the employability of graduates. There is a significant positive correlation between apprenticeship and employability, but the correlation between type of apprenticeship and employability is not statistically significant.
4. The significance of this study is that it provides a new perspective to understand how apprenticeships affect the employability of graduates from different backgrounds, particularly emphasizing the key role of working age in developing individuals' managerial skills, professional work attitudes and employability. The findings of the study support the value of apprenticeships as an integrated education model that combines academic education with practical work experience and provides a solid foundation for students' career development.
5. Despite the insights provided by this study, there are some limitations. The small sample size (only 50 respondents) limits the generalizability of the findings. The single source of data, relying mainly on questionnaires, may be subjectively biased. In addition, the cross-sectional design adopted does not adequately examine the long-term impact of apprenticeships.
6. In response to these limitations, future research could explore expanding the sample size to include more vocational institutions and graduates to improve the representativeness of the findings. Integrating multiple sources of data, such as combining interviews and field observations, will help provide a comprehensive picture of the impact of apprenticeships. The longitudinal study design will enable us to track the long-term impact of apprenticeship on the career development of graduates and provide a more comprehensive assessment. Through these efforts, we hope that future studies will provide a deeper and more comprehensive understanding, thereby contributing to the continuous improvement and optimization of the Vocational Education Apprenticeship Scheme.

This study provides valuable insights into the field of vocational education and training and provides strong support for the promotion and implementation of apprenticeships in vocational education in China. With the further development and improvement of the vocational education apprenticeship system, we expect the apprenticeship system to play a greater role in helping students achieve their career goals and make greater contributions to the development of vocational education in China.

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